REMARKS/ARGUMENTS

Reconsideration of this application is requested. This REPLY A, WITHOUT AMENDMENT, UNDER 37 CFR 1.111 is filed in response to the Office Action mailed April 20, 2005.

The Office Action mailed April 20, 2005 rejected pending Claims 1 through 52 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,685,873 to Weeks in view of U.S. Patent 5,299,478 to Schorn et al.. In this regard, the present Office Action states:

"Weeks discloses the invention substantially has claimed except for a load cell pressure transducer. However, Schorn et al. teaches a punch press wherein a transducer (38, 42) is used to monitor and track the position of a ram so as to better control the velocities thereof and reduce noise. See c.2, l.64 –c.3, l.38. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the invention of Weeks with the transducer as taught and suggested by Schorn et al. in order to facilitate reduction of noise."

Applicants initially note that no singular reference has been cited as anticipating their claimed inventions. Unpatentability for anticipation under 35 U.S.C. § 102(b) requires that all of the elements and limitations of the claim be found within a single prior art reference. Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 138, 231 USPQ 644, 646 (Fed.Cir.1986); RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed.Cir.1984).

Applicants respectfully traverse the rejection of claims under 35 U.S.C. § 103(a) as the same is applied to their pending Claims 1 through 52. Applicants also respectfully submit that the cited and applied references herein are not properly combinable in the manner asserted in the subject Office Action.

U.S. Patent 6,685,873 to Weeks discloses a production method and apparatus for separating integrally attached gutter flash from a blow-molded thermal plastic resin product utilizing tensile forces applied to the gutter flash while the product is fully restrained within the closed co-operating product mold cavity in which the product is formed. The present Office Action cites to Weeks as substantially disclosing Applicants' invention except for a load cell pressure transducer.

U.S. Patent 5,299,478 to Schorn et al. discloses a Method For Controlling Punch Press Noise in which the noise level produced is monitored by a detector and the press ram velocity is modified in real-time to keep the noise level within preset limits.

It is noted that the present Office Action concedes that the Weeks reference does not disclose a load cell pressure transducer. The Schorn et al. reference is cited as disclosing transducers 38 and 42.

Initially, it is respectfully submitted that the Weeks and Schorn et al. references are not properly combinable as advanced in the present Office Action.

In U.S. Patent 6,685,873 to Weeks the separation of otherwise integrally attached gutter flash from a blow-molded thermal plastic resin product **utilizes tensile forces applied to the gutter flash while the product is fully restrained within the closed co-operating product mold cavity in which the product is formed and prior to product ejection from within the mold apparatus**. Weeks at Column 2 lines 14 through 27 teaches a deflashing method involving the sequential steps of:

(1) blow-molding an extruded and heated thermoplastic resin parison **contained within co-operating blow mold subassemblies to form a blow-molded product** having integrally attached gutter flash,

(2) **separating** the integrally attached gutter flash from the blow-molded product **while the molded product is fully restrained by the mold subassemblies** and progressively

along the product mold parting-line perimeter from one product dimensional limit to an opposite dimensional limit until gutter flash separation from the product is complete, and (3) **afterwards opening the closed co-operating mold subassemblies for the purpose of removing the product and separated gutter flash** from the apparatus. {bold print emphasis added}

Weeks at Column 2 lines 28 through 31 states that:

"The forces applied to the gutter flash during such progressive gutter flash separation **are tension forces rather than otherwise known conventional cutting or shearing forces.**" {bold print emphasis added}

The Weeks deflashing tension force method is carried out by an apparatus comprised of a base blow-mold subassembly having one or more product molds, a co-operating cap blow-mold subassembly having a corresponding number of product molds complementary to and in registration with the base blow-mold subassembly product molds, a pivotally movable gutter plate that surrounds each base blow mold sub-assemblies product mold, a pivotally movable gutter plate that surrounds each cap blow-mold subassembly product mold, at least one bi-directional activator for pivotally moving the base blow-mold subassembly gutter plate, at least one bi-directional activator for pivotally moving the cap blow-mold subassembly gutter plate, and a programmable valve sequence control for properly sequentially activating the different blow-mold subassembly actuators throughout the complete production cycle of the blow-molding machine incorporating the apparatus.

In Weeks, **the base blow-mold subassembly and co-operating cap blow-mold subassembly are interactive with two separate bi-directional activators for pivotally moving base and cap subassembly gutter plates to create separating tension forces** applied along the product mold parting-line perimeter for progressive gutter flash separation **while the molded product is fully restrained by the mold subassemblies.**

In contradistinction, **the Schorn et al. punch press operation does not deflash while the molded product is restrained by or held within the mold sub-assemblies.** Rather, column 2 lines 38 through 53 teaches that a workpiece W is disposed on a table 22 and driven by a gripper carriage 24 in an X-Y plane to properly position the workpiece for a given punch operation at the location of a ram 15. A hydraulic cylinder 12 mounted on a press frame 14 is adapted to drive the ram 15 coupled to a punch 18 carried by an upper turret19, to drive the punch through the workpiece W and into a matching die 20 carried by a lower turret 21.

The Schorn et al. punch press is of the type which Weeks, at Column 1 lines 21 through 41, **seeks to depart from**, namely:

> "the manufacture of blow-molded thermoplastic resin products using conventional production blow-molding machine having known blow-mold assemblies to eject a molded product from the mold assembly with the simultaneously formed gutter flash integrally attached, and to afterwards completely separate the integrally attached flash from the ejected blow-mold product by subsequent combined operations such as sequential cutting and grinding or sequential shearing and grinding."

Still further, the Schorn et al. punch press relies upon what Weeks describes as **"otherwise known conventional cutting or shearing forces", not tension forces.** Indeed, the Schorn et al. punch press is addressed to operations of "metal cutting, such as punching or shearing in which significant sound noise is generated creating working environment problems".

The Weeks and Schorn et al. references are not properly combinable because their deflashing method and apparatus are incompatible with each other. There is no motivation for or suggestion for substituting the Schorn et al. **conventional cutting or shearing force of a post-mold assembly deflash operation** for the Weeks **tension force**

deflashing of molded product fully restrained by the mold subassemblies. Indeed, in Weeks the base blow-mold subassembly and co-operating cap blow-mold subassembly are interactive with two separate bi-directional activators for pivotally moving base and cap subassembly gutter plates to create the separating tension forces. One skilled in the art would not exchange such specialized structure accomplishing a different objective of tension separating the integrally attached gutter flash from the blow-molded product **while the molded product is fully restrained by the mold subassemblies** in favor of a cutting or shearing force of a post-mold punch deflashing operation wherein the non-separated molded product interacts with a gripper carriage after being molded.

Moreover, even if the improper combination of the Weeks and Schorn et al. references cited and applied in the present Office Action were to be made, the same would not reconstruct, teach, or suggest the inventions of Applicants' pending claims.

First, adding the transducers 38 and 42 of Schorn et al. to the apparatus of Weeks does not reconstruct Applicants' claimed inventions. The transducers 38 and 42 of Schorn et al. **are not load cell pressure transducers designed to measure the pressure of the punch against an extrusion at the die as called for in Applicants' pending claims**. To the contrary, Schorn et al. teaches that ram velocity is desirably controlled to minimize punching sound or noise and relies upon a position feedback transducer 38 and/or a valve spool position feedback transducer 42.

Schorn et al. states at column to line 64 to column 3 line 4 that:

> "The control system includes **a position feedback transducer 38 tracking the position of the ram 15 and supplying an error signal to a servo controller 40 so as to enable a precisely controlled ram velocity to be achieved**. Preferably **a valve spool position feedback transducer 42 is also used** with a valve amplifier 44 to improve the performance of the control system." {bold print emphasis added}

Applicants' claim program includes claims defining a load cell deflasher assembly {claims 1 through 7}, a load cell deflasher assembly in combination with an extrusion positioning assembly {claims 24 to 41} and a method for deflashing product {claims 42 – 52}. **All of these claims, in part, define or rely upon a load cell pressure transducer for measuring the pressure of the punch against the extrusion at the die, the load cell transducer being capable of communicating the pressure measurements to a programmable logic controller and the programmable logic controller providing commands to the positioning actuator based upon the pressure measurements.**

Applicants' load cell pressure transducer allows for pressure measurements of the punch against the extrusion at the die. Pressure is measured where the deflashing operation is to be performed and is communicated to a programmable logic controller capable of providing commands to the positioning actuator of the punch based upon the pressure measurements. This is a significant advantage compared to the cited and applied Schorn et al. hydraulic press ram. Applicants' claimed load cell deflasher assembly, load cell deflasher assembly in combination with an extrusion positioning assembly, and method for deflashing product **allows the punch stroke to be aborted.**

Schorn et al. merely allows for **control over ram velocity and does not measure pressure at the point of the deflashing** – namely the punch against the work piece extrusion at the die. More importantly, Schorn et al. **does not use such pressure measurements to abort the punch stroke**. In Schorn et al. a hydraulic punch stroke once commenced runs to deflashing completion, albeit at a controlled velocity, without the ability to abort and retract the same without deflashing contact.

In Applicants' claimed invention, if the pressure measurements of the load cell pressure transducer communicated to the programmable logic controller is equal to or less than a selected threshold limit the extension punch stroke can be completed. However, if the pressure measurements of the load cell pressure transducer communicated

to the programmable logic controller is greater than a selected threshold limit the **extension punch stroke is aborted in favor of a retraction punch stroke without deflashing contact.**

To the contrary, the position feedback transducer 38 and valve spool position feedback transducer 42 of the Schorn et al. punch press provides signals to a server controller 40 so as to enable **a precisely controlled ram velocity of the hydraulic press ram**. {see column 2 lines 6 to 12 and lines 64 to 68} The Schorn et al. punch stroke once initiated is completed. It is not taught to be capable of interruption such that an extension punch stroke can be aborted in favor of a retraction punch stroke.

Applicants' claimed load cell deflasher assembly, load cell deflasher assembly in combination with an extrusion positioning assembly, and method for deflashing product in part define or rely upon a load cell pressure transducer that measures the pressure of the punch against the extrusion at said die to obtain and communicate such pressure measurements to a programmable logic controller. The programmable logic controller can command a positioning actuator of the punch to extend or retract based upon the pressure measurement. If the pressure measurement is equal to or less than a selected threshold the extension punch stroke is completed. If the pressure measurement exceeds the selected threshold the extension punch stroke is aborted in favor of a retraction punch stroke.

This interruption of and greater control over a punch stroke is highly advantageous. As noted in the discussion of the related art set forth in Applicants' specification herein at page 1 line 14 to page 2 line 14:

> "various punch and die deflashers for the processing of product from an extrusion have been utilized, the same controlling a punch to die stroke by non-reversible and non-sensitive hydraulic or pneumatic stroke actuator controls. In such prior art punch and die deflashers once a punch stroke is initiated, an

extension stroke of the punch to the die to deflash product from an extrusion runs to completion without a capability to sensitively measure the pressure of the punch upon the extrusion and its attendant product and, if necessary, interrupt the punch stroke and reverse the same without deflashing contact. Further, such prior art punch and die deflashers deliver the extrusion for deflashing to a set position intervening the punch and die without the ability or structural means for adjusting the deflash position of the extrusion so as to minimize the deflash pressure of the punch against the extrusion at the die. To the contrary, such hydraulic or pneumatic punch actuators often employ a proximity switch to initiate a non-reversible punch advance and a proximity sensor to automatically return the punch. The lack of more control over the punch stroke and/or the extrusion deflash position in such prior art hydraulic or pneumatic punch actuators may be disadvantageous particularly when used in association with extrusions comprised of cooling plastics. For example, if the extrusion is not properly aligned relative to the punch and die (as may be the case due to a number of deflashing process environmental factors such as fluctuation in room or extrusion temperature, variation in wall thickness or weight of the extrusion, resin composition of the extrusion, etc.), the non-reversible hydraulic or pneumatic punch stroke may exert too much pressure upon the extrusion or its attendant product causing rupture of the same, breach of aseptic protocols, and production line halts."

The Schorn et al. method for controlling punch press noise relies upon reducing the programmed ram velocity with a positional feedback servo control hydraulic press ram {column 2 lines 6 to 12}. The ram velocity is desirably controlled to minimize punching sound or noise {column 3 lines 11 to 19}. The velocities of the ram during the deflashing penetration can be limited to reduce sound or noise to maximum permissible levels {column 3 lines 20 to 30}.

Second, adding the transducers 38 and 42 of Schorn et al. to the apparatus of Weeks would not accomplish the asserted purpose of the asserted combination, namely to "facilitate reduction of noise". In this regard, Schorn et al. is directed to a method for controlling punch press noise. **It is used in metal cutting, such as punching or shearing in which significant sound noise is generated.** {see Column 1, lines 9 to 12} As previously discussed, the Weeks reference avoids punching or shearing forces and rather relies upon **tension forces** applied not along metal, but rather a blow-molded extruded and heated thermoplastic resin parison **contained within co-operating blow mold subassemblies to form a blow-molded product** having integrally attached gutter flash. This non-metal blow-mold resin parison has a parting-line perimeter for **tension force** progressive gutter flash separation **while the molded product is fully restrained by the mold sub-assemblies.** Weeks, at Column 1 lines 21 to 41, notes that conventional deflashing {where molded product is ejected from the mold assembly for the deflashing operation} can require operation "cutting", "shearing", or "grinding" forces which are "sometimes extremely large and often are beyond the available capacity of the blow molding machine". Thus, Weeks sought to depart from such conventional deflashing procedures by resort to tension forces applied along the blow mold product parting-line perimeter for progressive gutter flash separation while the molded product is fully restrained by the mold sub-assemblies. Neither Weeks nor Schorn et al. teaches or suggests that **noise or noise reduction is a factor in tension force deflashing operations of a blow-molded resin parison while the molded product is completely restrained in the mold sub-assemblies.**

Third, the Schorn et al. punch press delivers its work product extrusion for deflashing to a set position intervening the punch and die without the ability or structural means for adjusting the deflash position of the extrusion so as to minimize the deflash pressure of the punch against the extrusion at the die. In contradistinction, Applicants' Claims 8 through 23 define a positioning assembly for variable positioning of the extrusion relative to a punch and die of a deflashing assembly that, in part, includes a

positioning actuator capable of adjustably positioning a gripper carriage relative to the positioning actuator in response to a command of a programmable logic controller to thereby alter the deflash position of the extrusion in intervening proximity between the punch and die.

It is observed that U.S. Patent 4,823,658 to Spicer (one of the background art patents referenced in Schorn et al.) discloses a punch assembly having a pressure transducer 41 and a position transducer 25 whose respective outputs are connected to a microprocessor controller for the punch assembly to reduce noise and punch cycle time. A piston cylinder 12 is provided with a pair of spaced ports 29 and 30 wherein the supply and exhaust of hydraulic fluid to and from ports is controlled by a servo valve 34. The servo valve 34 is actuated to supply pressurized hydraulic fluid to a passageway 36 and via an orifice plug 39 to the port 29 and into an extend chamber 31 for forward movement of a piston 13. {see column 3, lines 34 to 65} When it is desired to reverse movement of the piston 13, the passageway 36 is communicated with exhaust and hydraulic fluid fed into passageway 37 and port 39 so that pressurized fluid fills the retract chamber 32 to cause retraction of the piston 13. {see column 4, lines 8 to 12 and 35 to 40} The pressure transducer 41 communicates with the passageway 36 so that the pressure in the passageway can always be monitored during operations. {see column 4, lines 41 to 44} This monitoring allows microprocessor controlled servo valves to control the flow of pressurized hydraulic fluid to the extend and retract chambers of the hydraulic cylinder such that alternating the flow of pressurized fluid obtains reciprocating movement of the piston member and associated punch head assembly.

Similarly, U.S. Patents 5,027,631 and 5,031,431 both to Naito (also background art patents referenced in Schorn et al.) disclose a method and device for controlling the stroke of a punch machine that employs a pressure sensor 29 which detects the pressure in a hydraulic cylinder that controls the motion of a ram for a punch. The stroke of the ram is controlled to define an approach interval, a process interval, a strike interval, and return

interval of the stroke of a press machine.

The Spicer and the two Naito U.S. Patents employ a pressure transducer 41 or a pressure sensor 29, respectively, **to monitor pressurized hydraulic fluid in a hydraulic cylinder driving a piston/ram**. Extension and retraction of a stroke is controlled to reduce noise and punch cycle time. However, none the these references teach or suggest an interruption of a extension stroke such that the extension is aborted in favor of a retraction stroke. None of these references teach or suggest a load cell pressure transducer that obtains pressure measurements of the punch against the extrusion at the die and communicates the same to a programmable logic controller capable of providing commands to a positioning actuator of the punch based upon such pressure measurements.

As noted in the subject application, Applicants' load cell pressure transducer can sense and measure the pressure of a punch 14 against an extrusion and/or its integral workpiece or product at the die 16 so as to send an analog signal from its feedback connection 68 to a programmable logic controller 136. If the load cell pressure transducer's measurement of a pressure force of the punch to the extrusion is within a suitable parameter, the programmable logic controller 136 allows completion of a punch stroke, but if the force exceeds the established parameter then the programmable logic controller 136 triggers a rejection cycle of the positioning actuator 12 that provides for an aborted interrupted retraction of the extension rod 22 prior to the deflashing completion of the punch stroke.

Preferably the programmable logic controller of Applicants' load cell deflasher assembly in combination with the positioning assembly includes a trending database of logged pressure measurements of the load cell pressure transducer such that if the programmable logic controller detects an upward trending of the pressure measurements in the trending database exceeding a selected threshold limit, an auto-tune mode of the programmable logic controller is activated to, in sequential process steps, adjust the

position of the extrusion relative to the punch and die to a locus of minimum pressure measurement.

Further, Applicant's positioning assembly for variable positioning of the extrusion relative to a punch and die of a deflashing assembly, in part, includes a positioning actuator capable of adjustably positioning a gripper carriage relative to the positioning actuator in response to a command of a programmable logic controller to thereby alter the deflash position of the extrusion in intervening proximity between the punch and die.

Any attempted §103 (a) combination of Weeks in view of Schorn et al. would not reconstruction the foregoing features of Applicants' claimed inventions for at least three reasons.

First, a prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1550, 220 USPQ 303, 313 (Fed.Cir.1983), cert. denied, 469 U.S. 851, 105 S.Ct. 172, 83 L.Ed.2d 107 (1984). The Court of Appeals for the Federal Circuit in the case of Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1568, 1574, 1 USPQ2d 1593 (Fed.Cir.), cert. denied, 481 U.S. 1052 (1987) stated that it is error to "focus on isolated minutiae in a prior art patent while disregarding its scope, i.e. its entire disclosure, and how its disclosed structure works".

Second, it is the claimed invention as a whole that must be obvious to a person of ordinary skill in the art under the §103 inquiry. The mandate of §103 is that "the invention as a whole must be considered....[This] embraces the structure, its properties, and the problem it solves." In re Wright, 848 F.2d 1216, 1219, 6 USPQ2d 1959 (Fed.Cir.1988); and in Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 678-79, 7 USPQ2d 1315 (Fed.Cir.1988).

and the problem it solves." In re Wright, 848 F.2d 1216, 1219, 6 USPQ2d 1959 (Fed.Cir.1988); and in Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 678-79, 7 USPQ2d 1315 (Fed.Cir.1988).

Third, to render an Applicant's invention obvious, there must exist a motivation or reason for the worker in the art, without the benefit of Applicant's specification, to make the necessary changes in the reference cited. Modifying a reference in light of Applicant's disclosure is clearly improper. Ex parte Chicago Rawhide Manufacturing Company, 226 USPQ 438, 440 (PTAB 1984).

In the present application, the Weeks and Schorn et al. references are in many ways antithetical in concept to each other and to Applicants' claimed inventions.

These Remarks demonstrate the patentability of Applicants' pending Claims 1 to 52 which define a load cell deflasher assembly {claims 1 to 7}, a positioning assembly for a deflashing {claims 8 to 23}, a load cell deflasher assembly in combination with an extrusion positioning assembly {claims 24 to 41} and a method for deflashing product {claims 42 – 52}.

An earnest endeavor has been made to demonstrate the patentability of Applicants' LOAD CELL DEFLASHER ASSEMBLY AND METHOD in this REMARKS portion of this REPLY A, WITHOUT AMENDMENT, UNDER 37 CFR 1.111. It is submitted that the application is now in condition for allowance and an early and favorable action to that end is requested. If any questions or issues remain, the resolution of which the Examiner feels would be advanced by a telephonic conference with Applicant's attorney, he is invited to contact said attorney at the telephone number noted below.

Respectfully submitted,

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